CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 87-120

NPDES PERMIT NO. CA0038415

REISSUING WASTE DISCHARGER REQUIREMENTS FOR:

CITY AND COUNTY OF SAN FRANCISCO
RICHMOND SUNSET SEWERAGE ZONE
WET WEATHER DIVERSION STRUCTURES

The California Regional Water Quality Control Board, San Francisco Bay Region (the Board) finds that:

1. The City and County of San Francisco (the discharger) submitted an NPDES permit application dated October 18, 1985, for reissuance of NPDES Permit No. CA0038415.

2. The discharger operates a combined-sewer system serving a population of about 740,000. Prior to improvement, combined sewage overflowed from the system an average of 80 times each year, whenever rainfall intensity exceeded 0.02 inches per hour. The Richmond-Sunset sewerage zone is that area of the city draining to the Pacific Ocean; it is primarily residential and covers about 10,400 acres.

3. The discharger is currently subject to five NPDES permits, including the subject permit:

Order No.	NPDES No.	Facility
84-27	CA0037664	Southeast WPCP
84-47	CA0037672	North Point WPCP
84-45	CA0037681	Richmond-Sunset WPCP
84-28	CA0038610	Southeast & North Point Sewerage Zones
81-19	CA0038415	Richmond-Sunset Sewerage Zone

The latter two permits regulate combined-sewer overflows from designated diversion structures managed by the discharger.

4. The discharger currently discharges untreated or minimally treated domestic and industrial wastewater mixed with storm water runoff, all containing pollutants, into the Pacific Ocean, a water of the State and of the United States, through any of eight wet-weather diversion structures in the Richmond-Sunset sewerage zone:

Structure No.	Name	Outfall Size (feet)	Weir(Inv) Elevation	Peak Flow (mgd)	Discharge Location
1	Lake Merced	10x11.3	(+7.7) MLLW	614	Ft. Funston Beach
2	Vicente	2@5 dia	+17.7 MLLW	413	Ocean Beach
3	Lincoln Way	3@6 dia	+17.7 MLLW	840	Ocean Beach
4	Mile Rock	9x11	(-1.3) MLLW	--(a)	Mile Rock Beach
5	Sea Cliff PS1	1.5 dia	+66.7 MLLW	5	Phelan Beach
6	Sea Cliff	6 dia	(+17.3) MLLW	386	Baker Beach
7	Sea Cliff PS2	1 dia	+46.2 MLLW	10	Baker Beach
8	Baker Beach	7 dia	(+14.7) MLLW	710	Baker Beach

(a) Discharges only when ocean outfall out of service (emergency)

5. A 1978 study estimated average overflow volume from the eight diversion structures at about 3 billion gallons per year. Both overflow frequency and volume would drop significantly as a result of proposed new facilities:

Parameter	Annual Average for Westside: Pre-improvement	Post-improvement
Overflow frequency (times per year)	57	8
Overflow duration (hours)	372	32
Overflow volume (million gallons)	2,870	449
Percent sanitary wastewater	12%	5%

6. The discharger's 1975 Master Plan calls for new facilities to store, transport, and treat the combined wastewater from the entire city to the ocean in the vicinity of Lake Merced. Master Plan facilities would reduce overflow frequency to a long-term average of eight per year.

7. Due to grants and funding constraints, the discharger focused early efforts on the most cost-effective Westside projects. The so-called Minimum Westside Core was completed in February 1987 and includes the following facilities: Westside Transport, Westside Pump Station, Southwest Ocean outfall, and an effluent line from the existing Richmond-Sunset wastewater treatment plant to the Southwest Ocean outfall. These facilities will reduce the average overflow frequency to eight per year at the Lincoln Way and Vicente diversion structures and eliminate overflows at the Mile Rock diversion structure.

8. The Westside Transport is designed to remove settleable solids and floatable materials from combined sewage prior to any discharge from the Lincoln Way and Vicente diversion structures. Removal of these pollutants will provide further mitigation of the aesthetic and public health impacts of the overflows, above and beyond the benefits of reduced overflow frequency.

9. The discharger plans to construct two additional facilities which will reduce overflow frequency at the remaining five diversion structures. These are the Lake Merced and Richmond Transport facilities.

10. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains a listing of beneficial uses and

water quality objectives for surface waters in the region. It prohibits discharges to dead-end sloughs and discharges that do not receive a minimum initial dilution of 10:1 unless certain conditions are satisfied. It also sets a wet weather overflow policy to control overflows as a function of the beneficial uses to be protected in the vicinity of the overflows.

11. The State Water Resources Control Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on November 17, 1983. The Ocean Plan lists beneficial uses and water quality objectives for ocean waters, and prohibits the bypassing of untreated wastes to the ocean.

12. The Ocean Plan protects the following beneficial uses of ocean waters: industrial water supply, recreation, esthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other marine resources or preserves. The Basin Plan identifies the following beneficial uses of the Pacific Ocean in the vicinity of the San Francisco Bay Region:

- Industrial service supply
- Water contact recreation
- Non-contact recreation
- Commercial and sport fishing
- Preservation of Areas of Special Biological Significance
- Wildlife habitat
- Preservation of rare and endangered species
- Marine habitat
- Fish migration and spawning
- Shellfish harvesting
- Navigation

13. The federal Clean Water Act, as amended, requires publicly-owned treatment works (POTWs) to meet effluent limits based on secondary treatment. EPA has interpreted the Act to exclude combined sewers from the definition of POTW. Therefore, the Board must determine technology-based limits for conventional pollutants (BCT) and other pollutants (BAT) in the discharge. This is a case-by-case determination. For this discharge, BCT and BAT either cannot be determined or mean no control. One exception is floatable material, which can be easily removed from the discharge. State water quality standards are more stringent than BCT or BAT for this discharge, and thus determine discharge limits.

14. The discharger's combined sewer collection system, designed to transport both sanitary and storm flows, presents a unique problem with respect to Basin Plan compliance. The Regional Board, in Order 79-12, found that a long-term average of eight overflows per year from diversion structures 1 through 8 provided adequate overall protection of beneficial uses, given available data on the costs and environmental benefits of different levels of overflow reduction. The Regional Board, in Order 81-19, found that an exception to Basin Plan prohibitions for less than 10:1 initial dilution or discharge to dead-end sloughs was warranted for this discharge, concluding that an inordinate financial burden would be placed on the discharger relative to the increased protection of beneficial uses that would be gained. In addition, an equivalent level of environmental protection can be obtained by alternate means. All these findings still

apply.

15. The State Water Resources Control Board granted an exception to the Ocean Plan prohibition against the bypass of untreated waste with respect to the eight overflows per year from the eight diversion structures, in Order No. WQ 79-16, adopted on March 23, 1979.

16. The Board set a compliance schedule for the discharger in Cease and Desist Order No. 84-46, adopted on July 18, 1984.

17. The discharger has an approved EPA Local Pretreatment Program that covers all three of its wastewater treatment plants. This program, while aimed at year-round source control, will also reduce the concentrations of trace metals and toxic organic compounds in wet weather discharges from the diversion structures.

18. This order serves as an NPDES Permit, reissuance of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code. The discharger completed a Final EIR/EIS for the Wastewater Master Plan in May 1974 and completed a Final EIR for the Westside Transport in July 1977 (amended in August 1979 to reflect the requirements of Order 76-23). The Westside Transport project was modified to incorporate baffling as a mitigation measure to reduce discharges of floatable material. The discharger will prepare Draft EIRs for the Lake Merced Transport and the Richmond Transport. Upon completion of Final EIRs for these projects, the Board will review any adverse water quality impacts identified and, if necessary, make changes in this order.

19. The discharger and interested agencies and persons have been notified of the Board's intent to reissue the NPDES permit for this discharge and have been provided an opportunity to submit their written comments and appear at the public hearing.

20. The Board, at a properly-noticed public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act as amended and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of dry-weather waste from the wet weather diversion structures is prohibited.

2. Discharge to waters of the State is prohibited except as defined below. The discharger shall design and construct facilities for diversion structures 1 through 8 to achieve a long-term average of eight overflows per year from these facilities. (A new overflow event occurs if the discharge is interrupted for six or more hours.) This long term design criteria will not be used to determine

compliance or non-compliance with this prohibition. The discharger shall prepare a facilities operation plan which is consistent with the following objectives:

a. Maximize the volume of wastewater treated (at either the Westside treatment plant or in the Westside Transport) and discharged to the Southwest Ocean outfall, consistent with the hydraulic and treatment capacities of the discharger's storage, transport and treatment facilities, and

b. Assure that all discharges from the diversion structures are first baffled to reduce floatables volume.

An operation plan for the Lincoln Way and Vicente diversion structures shall be submitted to the Board by December 16, 1987. An operation plan for the remaining diversion structures shall be submitted to the Board at least two months prior to activation of storage/transport facilities serving those structures.

The operation plans will be subject to the Executive Officer's review and approval. The Executive Officer should approve an operation plan if it (i) adequately implements the above objectives and (ii) provides Regional Board staff with a practical way to assess conformance with the plan itself.

After an operation plan has been approved, the discharger's conformance to the operation plan will constitute compliance with this prohibition. Conversely, failure to comply with the plan will connote non-compliance with this prohibition. Pending plan approval, Regional Board staff should assess conformance with the above objectives to assess compliance. Following plan approval, the discharger may propose amendments, which are also subject to Executive Officer review and approval. The operation plan may be part of the discharger's Operation and Maintenance Manual (see Provisions).

B. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:

   a. Bottom deposits or aquatic growths;

   b. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result on biological concentration.

C. Provisions

1. The requirements prescribed by this Order supersede those prescribed

by Order No. 81-19. Order No. 81-19 is hereby rescinded.

2. The discharger shall comply with all sections of this Order immediately upon adoption. Cease and Desist Order No. 84-46 shall apply to this permit until such time as it is revised by the Board.

3. The discharger shall comply with the attached Self-Monitoring Program. The Executive Officer may make minor amendments to it pursuant to federal regulations (40 CFR 122.63).

4. The discharger shall comply with all items in the attached "Standard Provisions, Reporting Requirements, and Definitions" dated December 1986, with the exception of items A.18, B.2, C.8, C.10(b), C.11, and D.5.

5. The discharger shall prepare an Operation and Maintenance Manual for the wet-weather facilities that will be used to comply with this order, to be submitted to the Board prior to putting the facilities into operation. (An Operation and Maintenance Manual for the Westside Transport should be submitted to the Board by November 16, 1987.) The discharger shall review and update this Operation and Maintenance Manual annually or, in the event of significant facility or process changes, shortly after such changes occur. Annual revisions, or a letter stating that no revisions are needed, shall be submitted to the Board by August 1 of each year.

6. This Order expires on September 16, 1992. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days before this expiration date as application for re-issuance of waste discharge requirements.

7. The discharge of pollutants shall not create a nuisance as defined in the California Water Code.

8. The long-term average overflow frequency established in this order is based on information available at the time of its adoption. If the Board finds that changes in the location, intensity, or importance of affected beneficial uses occur, or that unacceptable adverse impacts on water quality result, then it may modify the long-term average. Such action could require the discharger to modify existing facilities, modify existing operation practices, or construct new facilities.

9. The discharger shall post warning signs at Ocean Beach, Baker Beach, and other areas with substantial beneficial uses following discharge from the diversion structures. Such warning signs should be posted on the same day as the overflow unless the overflow occurs after 4:00 pm, in which case the signs should be posted by 8:00 am the next day. The warning signs should remain up until receiving water analyses indicate that bacteriological objectives for swimming or other water-contact recreation are being met. The current practice of posting signs for the entire wet weather season may continue at beaches adjacent to diversion structures not yet meeting the required overflow frequency, until such time as new facilities are put into

service to reduce overflow frequency.

10. In the event of any change in control or ownership of property or facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this Board.

11. This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after the date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

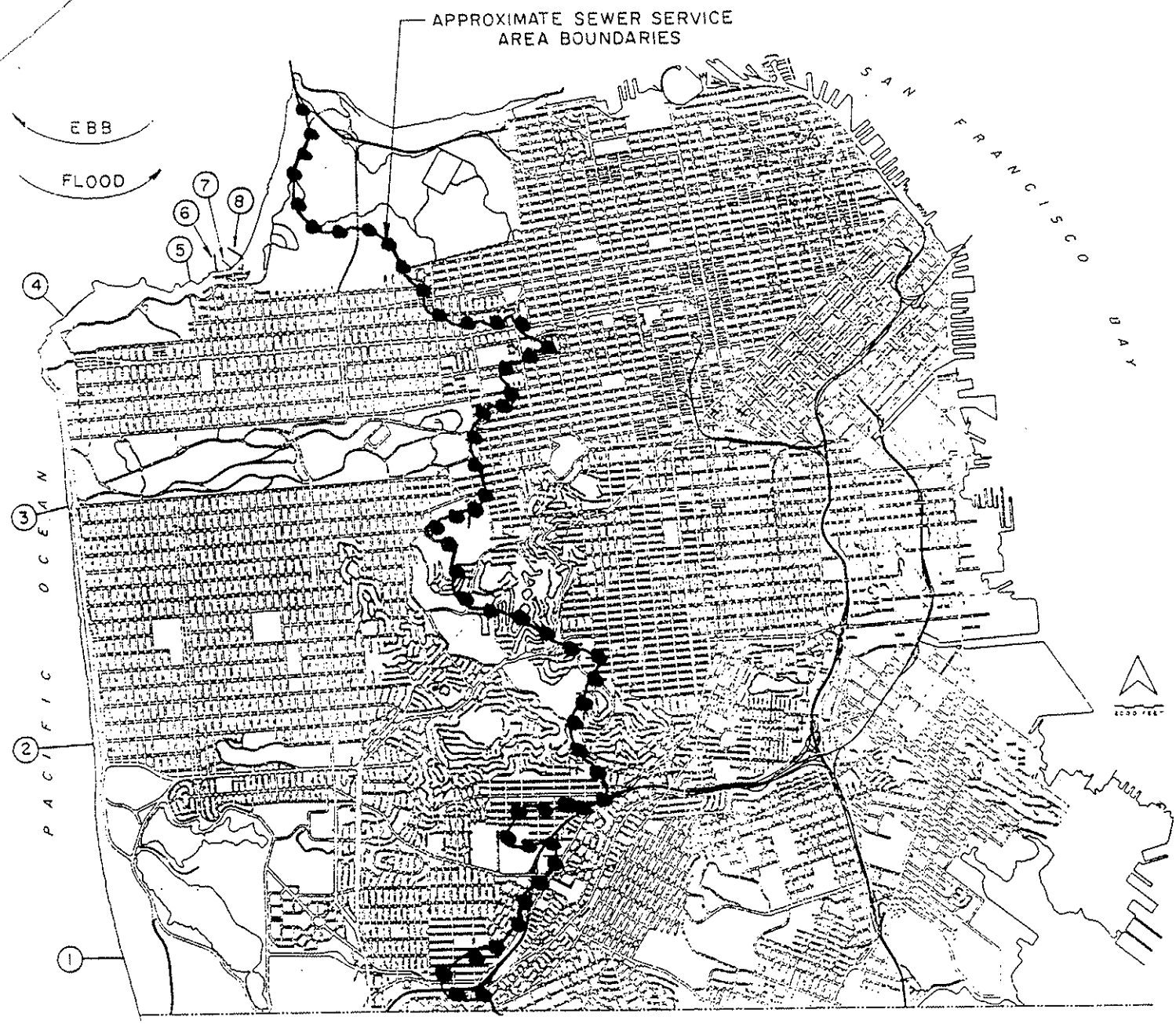
I, Roger B. James, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 16, 1987.

ROGER B. JAMES
Executive Officer

Attachments:

1. Project map
2. Standard Provisions, Reporting Requirements, and Definitions (December 1986)
3. Self-Monitoring Program (Parts A and B)

Attachment 1: Project Map



WESTSIDE WET-WEATHER DIVERSION STRUCTURES
#1 - #8 (1985)

# 1 - LAKE MERCED	# 5 - SEACLIFF PS # 1
# 2 - VICENTE	# 6 - SEACLIFF
# 3 - LINCOLN WAY	# 7 - SEACLIFF PS # 2
# 4 - MILE ROCK	# 8 - BAKERS BEACH

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CITY AND COUNTY OF SAN FRANCISCO
RICHMOND-SUNSET SEWERAGE ZONE
WET WEATHER DIVERSION STRUCTURES

NPDES PERMIT NO. CA0038415
ORDER NO. 87-120

CONSISTING OF

PART A AND PART B

PART B

I. MODIFICATION OF PART A (December 1986)

Items D.1 through D.5, E.4, and G.1 of Part A will not apply to this self-monitoring program. Item G.5 (Annual Reporting) is modified to set an August 1 deadline for the rainfall year ending on June 30.

II. SELF-MONITORING PRIOR TO OVERFLOW REDUCTION

Five diversion structures currently discharge an average of 114 times per year (Lake Merced and four at Baker Beach). Pending completion of improvements that would reduce overflow frequency per this order, the discharger shall monitor the following parameters at each such diversion structure:

- Date and time that discharge started
- Frequency, duration, and (if possible) volume of discharge
- Rainfall intensity and amount (hourly data, aggregated)

For monitoring purposes, a new discharge event occurs if the discharge is interrupted for six or more hours.

III. SELF-MONITORING AFTER OVERFLOW REDUCTION

The discharger has reduced the overflow frequency at two diversion structures: Lincoln Way and Vicente. The following monitoring requirements apply to these two structures, and will apply to the other diversion structures as soon as improvements are made to reduce overflow frequency at those locations. For monitoring purposes, a new discharge event occurs if the discharge is interrupted for six or more hours.

A. Effluent Monitoring

The discharger shall provide the following non-sampling information:

- Date and time that discharge started
- Frequency, duration, and (if possible) volume of discharge
- Rainfall intensity and amount (hourly data, aggregated)
- Summary data to support estimate of discharge volume
- Summary data to document conformance with operation plan for wet-weather facilities

The discharger shall establish a sampling station at each diversion structure. The station shall be located at a point prior to discharge where all waste tributary to the diversion structure is present and all treatment (i.e. baffling) is complete. (With respect to the Lincoln Way and Vicente diversion structures, the discharger may take effluent samples at the Westside pump station before decant from the Westside transport is mixed with treatment plant effluent

and discharged via the ocean outfall.) Effluent sampling will be required only during discharge events, which may last from less than an hour to over a day. Composite sampling shall commence within 1 hour after a discharge begins and continue until the discharge ceases, but not to exceed 24 hours. Samples shall be taken according to the following schedule:

Parameter	Sample Type	Sample Frequency
Flow (mgd)	Continuous	Continuous during discharge
BOD (mg/l)	C-X[1] (X<24)	1/discharge[2]
Suspended solids (mg/l)	C-X[1] (X<24)	1/discharge[2]
Ammonia as N (mg/l)	C-X[1] (X<24)	1/discharge[2]
Oil and Grease (mg/l)	Grab[3]	1/discharge[2]
pH	Grab	1/discharge[2]
Temperature (^{o}C)	Grab	1/discharge[2]
Trace metals[4] (ug/l)	C-X[1] (X<24)	No more than 1/month
Phenolic compounds (ug/l)	C-X[1] (X<24)	No more than 1/month
PAH[5] (ug/l)	C-X[1] (X<24)	No more than 1/month

Notes:

1. Composite sample (1/hour) over X hours (the duration of the discharge), not to exceed 24 hours.
2. One composite sample per discharge event, not to exceed 2 composite samples per month.
3. May use composite sample if Standard Methods used to assure accurate results. Otherwise, use three grab samples taken at two hour intervals, with the first taken during the first hour of discharge.
4. Measure concentrations of ten metals: arsenic, cadmium, chromium (hexavalent and total), copper, lead, mercury, nickel, silver, zinc, and cyanide.
5. Polynuclear aromatic hydrocarbons, as identified in EPA Method 610.
6. Grab samples required only during daylight hours.

B. Receiving Water Monitoring

Shoreline monitoring in the vicinity of the eight diversion structures is already required in the Self-Monitoring Program for the Richmond-Sunset wastewater treatment plant and Southwest ocean outfall (NPDES permit CA0037681). The Executive Officer is authorized to require shoreline monitoring for coliform bacteria and

other parameters in this permit if such requirements are deleted from the other permit.

IV. SPECIAL STUDY

The discharger shall conduct a special study to assess removal efficiency of the Westside Transport with respect to BOD, suspended solids, settleable solids, total coliform bacteria, and other pollutants that may be specified by the Executive Officer. The discharger shall prepare a study plan outlining study parameters and schedule. The study plan shall be submitted to the Board by December 16, 1987. A similar study may be required by the Executive Officer following completion of other wet-weather facilities (e.g. Lake Merced Transport and Richmond Transport).

I, Roger B. James, Executive Officer, hereby certify that the following Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in the Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order No. 87-120.

2. Has been ordered by the Board on September 16, 1987.

3. May be revised by the Executive Officer pursuant to federal regulations (40 CFR 122.63); other revisions must be ordered by the Board.

Attachment: Part A (December 1986)

ROGER B. JAMES
Executive Officer

SEPTEMBER 17, 1987
Effective Date